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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,465	05/30/2000	ROBERT THOMAS OWEN REES	B-3942PCT-61	9371

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EXAMINER
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ZHEN, LI B

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 12/15/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/555,465

Applicant(s)

REES ET AL.

Examiner

Li B. Zhen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 5, 7 – 14, 21 – 24, 29 – 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over “A Framework for Inter-ORB Request Level Bridge Construction” (herein after Steinder) in view of U.S. Patent No. 5,742,759 to Nessett.

As to claim 1, Steinder teaches (*Mapping object references from IIOP domain*, p. 10) a gateway between a first network and a second network (mapping or bridging mechanism resides at the boundary between domains; p. 2, Section 2), the system comprising:

interface means (InterORB\_Proxy uses standard CORBA interfaces) to receive from the first network a message (request from the client's ORB) intended for an object in the second (server's ORB) network (InterORB\_Proxy uses standard CORBA interfaces to translate request from the client's ORB to the server's ORB; Section 5.1, p. 7), the message including an identifier for a further object in either the first or second network (a request arriving from IIOP domain to the server ORB may contain IOR references which have to be mapped to the server's ORB proprietary form);

means (half-bridge) to generate further interface means (new half-bridge with InterORB\_Proxy inside) for receiving from the second network messages for the further

object (half-bridge must create a new half-bridge with InterORB\_Proxy inside which encapsulates the reference);

means to replace the received identifier (replace IOR in the request) with the new identifier (reference specific for this domain) in the message (InterORB\_Proxy object possesses a reference specific for this domain which replace IOR in the request); and

means to forward the message to the object in the second network (reference returned in LocateReply is a final reference to be used during a call).

Steinder also teaches (p. 9, Reference Translation; p. 10, *Mapping object references from IIOP domain*) means to form a new identifier (mapped from their proprietary form to an Interoperable Object Reference for IIOP) for the further interface means (InterORB\_Proxy object possesses a reference specific for this domain which replace IOR in the request). Steinder does not specify the new identifier including check data resulting from a hash operation for checking the validity of the or at least part of the new identifier.

However, Nessett teaches securely controlling access to resources in a distributed computer system (col. 3, lines 10 – 22) and an identifier (object reference) including check data (checksum) resulting from a hash operation (object reference may be run through a cryptographic one-way hash function to produce a cryptographic checksum on the object reference data...cryptographic checksum is also saved in or associated with the spreadsheet object reference; col. 7, lines 38 - 53) for checking the validity of the or at least part of the new identifier (server compares the retrieved checksum with the recomputed checksum...if the checksums match then the

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spreadsheet server permits the compound document server to retrieve the necessary data; col. 8, lines 50 - 63).

It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of including check data in an identifier as taught by Nessellet to the invention of Steinder because this provides the object reference with greater protection against forgery (col. 7, lines 50 – 52 of Nessellet).

As to claim 33, this is a method claim that corresponds to system 1; note the rejection to claim 1 above, which also meets this method claim.

As to claim 2, Steinder teaches (*Mapping object references from IIOP domain*, p. 10) the new identifier includes information to enable subsequent recovery by the system of the received identifier (InterORB\_Proxy encapsulates the reference).

As to claim 3, Steinder teaches (Section 5.4, p. 9) the new identifier includes a representation of the received identifier (opaque reference form is encapsulated in the object\_key field).

As to claim 4, Steinder teaches (Section 5.4, p. 9) the new identifier includes an indication of the identity of the received identifier and the system includes means to associate said indication with said received identifier (fill out the ProfileBody structure...the opaque reference is encapsulated in the object\_key field...host and port of this structure are assigned host name and port number of some IIOP domain object which is able to support this reference in the case of calling it).

As to claim 5, Steinder teaches (Section 5.4, p. 9) means to include in the new identifier a name tag (name and port number of some IIOP domain object) to identify the

interface means (host and port of this structure are assigned host name and port number of some IIOP domain object which is able to support this reference in the case of calling it).

As to claim 7, Steinder as modified teaches the check data is a result of a hash operation enacted on at least part of the identifier and a secret (object reference may be run through a cryptographic one-way hash function to produce a cryptographic checksum on the object reference data...cryptographic checksum is also saved in or associated with the spreadsheet object reference; col. 7, lines 38 – 53 of Nessett).

As to claims 8 and 9, Steinder teaches (Section 5.4, p. 9) means to include in the new identifier an indication that the received identifier was received in a message from the first or second network (ProfileBody structure includes host and port).

As to claim 10, Steinder teaches (Section 5.4, p. 9) form the new identifier (ProfileBody structure) on the basis of the determined origin (opaque reference is encapsulated in the object\_key field).

As to claims 11 and 13, Steinder teaches (*Eager reference mapping to IIOP domain*, p. 10) if the received identifier originated in the first network, the means to form the new identifier forms a new identifier including information to enable subsequent recovery by the system of the received identifier (IOR including host name and port number is sent to the half-bridge on the server's side...recipient creates a half-bridge for server environment...a reference of the InterORB\_Proxy inside the newly created half-bridge is sent to the server in the Request message).

As to claim 12, Steinder teaches (*Lazy reference mapping to IOP domain*, p. 10) if the received identifier originated in the second network, having passed through the system from the second network to the first network (LocateReply will contain IOR which points to the InterORB\_Proxy inside the created half-bridge), the means to form the new identifier forms a new identifier comprising an original identifier recovered from information included in the received identifier (a Bridge Factory is introduced in each cooperating environment...its host name and port number are used to fill the ProfileBody field of the IOR).

As to claim 14, Steinder teaches (Section 5.1, p. 7 – 8) comprising means to detect a name tag (char \* PeerRef) in the message.

As to claim 21, Steinder teaches (Section 5.1, p. 7; *Determining Foreign Object Reference at connection establishment stage*, p. 10 – 11) the means to generate the further interface means comprises means to determine (finding the server object reference and creating its InterORB\_Proxy) on the basis of the received identifier whether a template (the InterORB\_Proxy is implemented as a template) for an appropriate further interface means is already known to the system.

As to claims 22 and 24, Steinder teaches (*Determining Foreign Object Reference at connection establishment stage*, p. 10 – 11) the means to generate the further interface means comprises means, which is operable in the event an appropriate template is not known to the system, to obtain an appropriate template from a remote repository (a search for foreign object references and creation of InterORB\_Proxies for them is managed by a special trading protocol).

As to claim 23, Steinder teaches (Section 5.1, p. 7) the means to generate the further interface means comprises means, which is operable in the event no appropriate template is known to the system and/or an appropriate template is not recoverable from a remote repository, to obtain a generic template (InterORB\_Proxy uses standard CORBA interfaces... new CORBA module will inherit from the old one).

As to claim 29, Steinder teaches (Section 5.4, p. 9) wherein the received identifier is an Interoperable Object Reference (Interoperable Object Reference) having the form IOR [host: port: key] (opaque reference is encapsulated in the object\_key field... host and port of are assigned host name and port number).

As to claim 30, Steinder teaches (Section 5.4, p. 9) the new identifier (ProfileBody structure) is an Interoperable Object Reference (Interoperable Object Reference) having the form IOR[host x: port x: key x] (object\_key field... host and port), wherein key x includes information to enable subsequent recovery by the system of the received identifier (opaque reference is encapsulated in the object\_key field).

As to 31, Steinder teaches (Section 5.4, p. 9) wherein key x includes a representation of the received object reference IOR[host i: port i: key i] (opaque reference is encapsulated in the object\_key field).

3. Claims 15 – 20, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinder and Nessett in view of "ORB 2.0 RFP Submission" (hereinafter IONA).

As to claims 15, 17 and 18, Steinder as modified does not teach determining if an object is valid and available to receive messages.



However, IONA teaches (p. 29) checking validity of an identifier (most ORBs provide the ability to determine if an object reference is still valid) determine whether the object in the second network is valid and is still available to receive messages (gatewayed objects that have not been used in a long time could be checked to see if they no longer exist).

It would have been obvious to a person of ordinary skilled in the art at the time of the invention to apply the teaching of checking validity of an identifier as taught by IONA to the invention of Steinder as modified because gatewayed objects that have not been used in a long time could be checked to see if they no longer exist and, if they have been deleted, the proxy may also be deleted (p. 29 of IONA).

As to claim 16, Steinder as modified teaches (Section 4.5.1, p. 25 of IONA) a naming service (name services) and the presence or absence of a name tag being indicative of whether the object associated with the name tag is available or not (gatewayed objects that have not been used in a long time could be checked to see if they no longer exist and if they have been deleted, the proxy may also be deleted).

As to claim 32, Steinder teaches (Section 5.1, p. 7 – 8; Section 5.4, p. 9) key x includes: an identifier to indicate from which network the object reference originated (opaque reference is encapsulated in the object\_key field) and a name tag (char \* PeerRef) associated with an identity of the gateway process. As to check data for verifying the validity of the object reference, see the rejection to claim 1 above.

As to claim 19, see the rejection to claim 7 above.

As to claim 20, Steinder as modified teaches the secret is stored by and only accessible by the gateway (server object generates an unforgeable number and stores the unforgeable number with the spreadsheet object; col. 5, lines 23 – 55 of Nessett).

4. Claims 25 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinder and Nessett in view of U.S. Patent No. 5,991,877 to Luckenbaugh.

As to claim 25, Steinder as modified does not teach a trusted operating system.

However, Luckenbaugh teaches (column 4, line 57 – column 5, line 5; column 10, lines 10 – 40) teaches a trusted operating system (access control system includes a trusted framework).

It would have been obvious to a person of ordinarily skilled in the art to apply the teaching of a trusted operating system as taught by Luckenbaugh to the invention of Steinder as modified because this provides fine-grained security access authorizations (column 2, lines 39 – 55 of Luckenbaugh).

As to claim 26, Steinder as modified teaches (column 8, lines 20 – 50; column 9, lines 23 – 31; column 10, lines 30 – 40 of Luckenbaugh) the trusted operating system enforces Mandatory Access Control (MAC and role-based policies).

As to claim 27, Steinder as modified teaches (column 6, line 42 – column 7, line 30; column 8, lines 1 – 48 Luckenbaugh) comprising at least two logical compartments (client 301 and server 302, Fig. 3) and a trusted relay process (AuthClient class 140, Fig. 3) that has privileges necessary to pass messages between the two compartments, wherein the first network and the respective interface means are associated with a first compartment and the second network is associated with a second compartment (policy

manager of 310a of the client 301 must issue the appropriate call through an AuthClient object 140 to invoke an appropriate return by the interaction of an authenticator object 130 and the policy manager 310b of the server 302, Fig. 3).

As to claim 28, Steinder as modified teaches (column 8, lines 20 – 50 of Luckenbaugh) wherein a secret (name and password), usable by the system in a hash operation for validating object references (authentication protocol between the client and server), is associated with a third compartment (Authenticator 130, Fig. 3), and wherein only the trusted relay process has the privileges necessary to retrieve the secret from the further compartment in order to enact a hash operation (instances of the AuthClient class 140 contains objects which preferably provide an interface...to collect information concerning the client which are needed for particular authorization policies...any number of additional interfaces to accommodate other existing or custom authorization protocols can be provided).

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (703) 305-3406. The examiner can normally be reached on Mon - Fri, 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Li B. Zhen  
Examiner  
Art Unit 2126

lbz  
December 5, 2003



**JOHN FOLLANSBEE  
SUPERVISORY PATENT EXAMINER  
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